

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
23 October 2003 (23.10.2003)

PCT

(10) International Publication Number:  
**WO 03/087110 A1**

- (51) International Patent Classification<sup>7</sup>: C07F 9/30, Mühlheim/Ruhr (DE). SARTORI, Peter [DE/DE]; Zur Ludwigshöhe 28, 86919 Utting (DE).  
C07C 211/62, C07F 9/54, C07D 233/58
- (21) International Application Number: PCT/EP03/02740 (74) Common Representative: MERCK PATENT GMBH; Frankfurter Strasse 250, 64293 Darmstadt (DE).
- (22) International Filing Date: 17 March 2003 (17.03.2003) (81) Designated states (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (25) Filing Language: German
- (26) Publication Language: German
- (30) Priority Data: 102 16 997.7 16 April 2002 (16.04.2002) DE (84) Designated states (*regional*): ARIPO Patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European Patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): MERCK PATENT GMBH [DE/DE]; Frankfurter Strasse 250, 64293 Darmstadt (DE).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): WELZ-BIERMANN, Urs [DE/DE]; Rebenstrasse 103, 64646 Heppenheim (DE). IGNATYEV, Nikolai [UA/DE]; Prinzenstrasse 104, 47058 Duisburg (DE). WEIDEN, Michael [DE/DE]; Langgaesserweg 48, 64285 Darmstadt (DE). HEIDER, Udo [DE/GB]; 4 Wintwerth Grange, Winchester SO22 4HZ (GB). KUCHERYNA, Andriy [UA/DE]; Wörthstrasse 6, 47053 Duisburg (DE). WILLNER, Helge [DE/DE]; Föhrenkamp 3, 45481

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR THE PREPARATION OF BIS(PERFLUOROALKYL)PHOSPHINIC ACIDS AND SALTS THEREOF

(57) Abstract: The present invention relates to a process for the preparation of bis(perfluoroalkyl)phosphinic acids comprising at least the reaction of at least one difluorotris(perfluoroalkyl)phosphorane or at least one trifluorobis(perfluoroalkyl)phosphorane with hydrogen fluoride in a suitable reaction medium, and heating of the resultant reaction mixture. The invention also relates to salts of bis(perfluoroalkyl)phosphinic acids and to the use thereof.